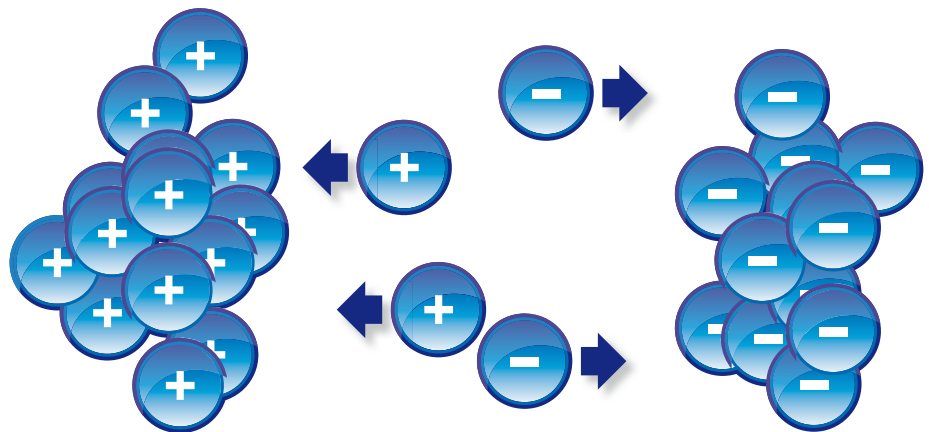


Conductivity/Total Dissolved Solids

A measure of the impurities in water supplies for domestic and industrial use.



Tester [1] ECTestr® 11; 11+; TDSTestr® 11; 11+

Handheld [1] CyberScan COND 600; 610 [2] CyberScan CON 400; 410 [3] CyberScan CON 11; 110 [4] EcoScan CON 6; TDS 6

Bench [1] CyberScan CON 6000 [2] CyberScan CON 1500 [3] CyberScan COND 1400 [4] CyberScan CON 510

About Conductivity Measurement

Introduction to Conductivity, TDS and Salinity

Electrical Conductivity (EC) meters measure the capacity of ions in an aqueous solution to carry electrical current. As the ranges in aqueous solutions are usually small, the basic units of measurements are milliSiemens/cm (mS/cm) and microSiemens/cm (µS/cm).

Solution	Conductivity
Absolute pure water	0.055 µS/cm
Power plant boiler water	1.0 µS/cm
Good city water	50 µS/cm
Ocean water	53 mS/cm
Distilled water	0.5 µS/cm
Deionised water	0.1 - 10 µS/cm
Demineralised water	0 - 80 µS/cm
Drinking water	0.5 - 1 mS/cm
Wastewater	0.9 - 9 mS/cm
Seawater	53 mS/cm
10 % NaOH	355 mS/cm
10 % H ₂ SO ₄	432 mS/cm
31 % HNO ₃	865 mS/cm

Conductivity is used widely to determine the level of impurities in water supplies for domestic consumption as well as industrial use. Industries that employ this method include the chemical, semi-conductor, power generation, hospitals, textile, iron and steel, food and beverage, mining, electroplating, pulp and paper, petroleum and marine industries.

Specific applications include chemical streams, demineraliser output, reverse osmosis, stream boilers, condensate return, waste streams, boiler blowdown, cooling towers, desalination, laboratory analysis, fruit peeling and salinity level detection in oceanography.

Eutech offers a wide range of conductivity meters for these various applications. Models include the ECTestr™ series, EcoScan CON 6, CyberScan handheld CON 11 and CON 110, CyberScan waterproof CON 400 and CON 410 and CyberScan bench meters CON 510, CON 1500, CON 6000 as well as the handheld multi-parameters PC 10, PC 300, PC 510 and colour touchscreen research-grade bench series PC 6000, PC 6500 and PCD 6500.

The total TDS is a mass estimate and is dependent on the mix of chemical species as well as the concentration while conductivity is only dependent on the concentration of chemical species. Some applications require the measurement of Total Dissolved Solids (TDS) in mg/L, parts per million (ppm) or parts per thousand (ppt). The TDS concentration can be obtained by multiplying the conductivity value with a factor which is empirically determined.

Eutech offers meters that allow the direct reading of TDS values. These include the TDSestr™ series, EcoScan TDS 6, CyberScan standard handheld CON 11, CON 110 and waterproof handheld CON 410. Bench meters for advanced level laboratory research are the CyberScan CON 510, CON 1500 and colour touchscreen research-grade CON 6000.

Salinity measurements are common in industries like agriculture, aquaculture, hydroponics, food, pools and spas where it is necessary to monitor the salt level constantly. The values are usually read in parts per thousand (ppt) or % (1 ppt = 1 gram per litre).

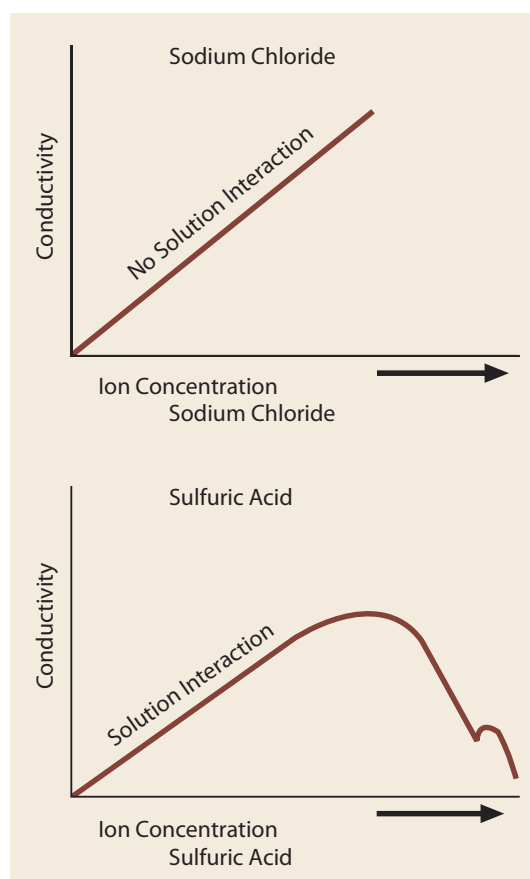
The Eutech salinity pocket testers SaltTestr™ series are specially developed to provide direct readings in these applications.

The Principle of Conductivity Measurement

The principle by which instruments measure conductivity is simple – two plates are placed in the sample, a potential is applied across the plates (normally a sine wave voltage), and the current is measured. Conductivity (G), the inverse of Resistivity (R) is determined from the voltage and current values according to Ohm's law.

$$G = I/R = I \text{ (amps)} / E \text{ (volts)}$$

Since the charge on ions in solution facilitates the conductance of electrical current, the conductivity of a solution is proportional to its ion concentration. In some situations, however, conductivity may not correlate directly to concentration. The graphs below illustrate the relationship between conductivity and ion concentration for two common solutions. Notice that the graph is linear for sodium chloride solution, but not for highly concentrated sulfuric acid. Ionic interactions can alter the linear relationship between conductivity and concentration in some highly concentrated solutions.



Units of Measurement

The basic unit of conductivity is the Siemens (S), formerly called the mho. Since cell geometry affects conductivity values, standardized measurements are expressed in specific conductivity units (S/cm) to compensate for variations in electrode dimensions. Specific conductivity (C) is simply the product of measured conductivity (G) and the electrode cell constant (L/A), where L is the length of the column of liquid between the electrode and A is the area of the electrodes.

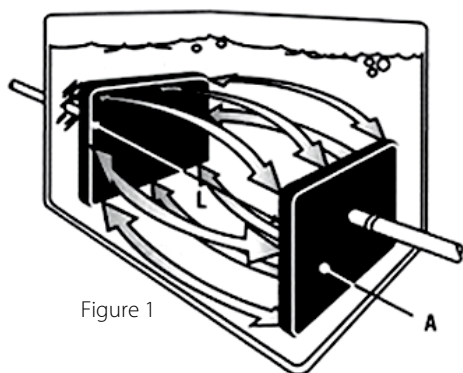


Figure 1

$$C = G \times (L/A)$$

If the cell constant is 1 cm^{-1} , the specific conductivity is the same as the measured conductivity of the solution. Although electrode shapes vary, an electrode can always be represented by an equivalent theoretical cell.

Conductivity Temperature Compensation

Conductivity measurements are temperature dependent. The degree to which temperature affects conductivity varies from solution to solution and can be calculated using the following formula:

$$G_t = G_{t_{std}} \{1 + \alpha(T - T_{std})\}$$

where:

G_t = Conductivity at measured Temperature T in $^{\circ}\text{C}$;

$G_{t_{std}}$ = Conductivity at Reference (Normalisation) Temperature T_{std} in $^{\circ}\text{C}$;

α = Temperature Coefficient of solution at T_{std} in $^{\circ}\text{C}$;

T_{std} = Reference or Normalisation Temperature in $^{\circ}\text{C}$

All meters have either fixed or adjustable automatic temperature compensation referenced to a standard temperature – usually 25°C . Most meters with fixed temperature compensation use α of 2 % per $^{\circ}\text{C}$ (the approximate α of NaCl solutions at 25°C). Meters with adjustable temperature compensation let you to adjust the α to more closely match the α of your measured solution.

Conductivity Meter Calibration and Cell Maintenance

Conductivity meters and cells should be calibrated to a standard solution before using. When selecting a standard, choose one that has the approximate conductivity of the solution to be measured.

A polarized or fouled electrode must be cleaned to renew the active surface of the cell. In most situations, hot water with a mild liquid detergent is an effective cleanser. Acetone easily cleans most organic matter, and chlorine solutions will remove algae, bacteria or molds. To prevent cell damage, abrasives or sharp objects should not be used to clean an electrode. A cotton bud works well for cleaning but care must be taken not to widen the distance of cell.

Conductivity Cells

Most conductivity meters have a 2-cell electrode available in either dip or flow-through styles. The electrode surface is usually platinum, titanium, gold-plated nickel, or graphite. The 4-cell electrode uses a reference voltage to compensate for any polarization or fouling of the electrode plates. The reference voltage ensures that measurements indicate actual conductivity independent of electrode condition, resulting in higher

accuracy for measuring pure water.

The Eutech EC620165 4-cell conductivity electrode (cell constant $K=1.0$) with in-built ATC and DIN connector is available for use with the bench meters CON 1500, PC 6000, PC 6500 and PCD 6500. ECCONSEN9203J 4-cell conductivity electrode with ATC and 3 m cable is available for COND 600, COND 610, PCD 650 and CD 650 handheld meters.

Important Features to Consider in a Conductivity Meter

- **Auto-Ranging**

Meter automatically selects the appropriate range for measurement. There is no need to change the dial, multiply values on the display, or turn the potentiometer.

- **Temperature Compensation**

A cell with built-in temperature sensor allows the meter to make adjustments to the conductivity or TDS readings based on changes in solution temperature.

- **TDS Conversion Factor**

When a solution does not have a similar ionic content to natural water or salt water, then a TDS conversion factor is needed to automatically adjust the readings.

- **Adjustable Temperature Coefficients**

The TDS of certain samples, such as alcohols and pure water, are affected by changes in temperature. An adjustable temperature coefficient allows the user to compensate for temperature changes on the solution being measured.

- **Adjustable Cell Constant**

Adjusts the reading on the display to reflect use of a cell with a constant other than $k=1.0 \text{ cm}^{-1}$.

Eutech's wide range of conductivity meters incorporates these features for consistent, accurate and reliable measurements.



<< Photo Development

>> Industrial Boilers





Unique cup-style design of '+' series allows you to hold small volumes of sample

* For ECTestr 11+ & TDSTestr 11+

TDS/°C/°F
ECTestr® 11 ; ECTestr® 11+ ; TDSTestr® 11 ; TDSTestr® 11+
Conductivity/°C/°F
Conductivity/°C/°F

Offering one of the best accuracies among pocket-sized conductivity and TDS meters today, the ECTestr® 11 series and TDSTestr® 11 series come with $\pm 1\%$ full scale accuracy over a broad measurement range. Handy, IP67-waterproof and long-lasting, the testers are so light, they float!



High Accuracy

- TDSTestr 11+ series measures up to 10.00 ppt
- ECTestr 11+ series measures up to 20.00 mS/cm
- Selectable TDS factor (0.40 to 1.00) for TDSTestr 11 series
- Selectable single/multi-point calibration with auto/manual options
- $\pm 1\%$ full scale accuracy

Long Lasting

- Reduced operating cost – use tester body again and again with user-replaceable sensor
- Rugged and waterproof to IP67 standards. So light, it floats!





User-Friendly

- Auto-ranging capabilities options with convenient direct readout and optional range selection
- Temperature display with °C and °F options – no need for separate thermometer!
- Non-volatile memory retains tester settings, even when batteries run out



Applications

• Water & wastewater treatment • Boiler blow-down • Electroplating rinse tanks • Drinking water • Hydroponics • Printing Industry • Aquaculture • Aquariums & fish farms • Swimming pools • Others

		EC Waterproof Large Dual-Display Pocket Tester		TDS Waterproof Large Dual-Display Pocket Tester	
		ECTestr 11+	ECTestr 11	TDSTestr 11+	TDSTestr 11
Conductivity/ TDS Pocket Testers Specifications					
Measuring Parameter		Conductivity / °C / °F		TDS / °C / °F	
Highlights		Multi-range	Dual-range	Multi-range	Dual-range
Conductivity	Range	.. to 200.0 µS/cm .. to 2000 µS/cm .. to 20.00 mS/cm	.. to 2000 µS/cm .. to 20.00 mS/cm	–	
	Resolution	0.1 µS/cm 1 µS/cm 0.01 mS/cm	10 µS/cm 0.10 mS/cm	–	
	Accuracy	±1 % full scale		–	
TDS	Range	–		.. to 100.0 ppm * .. to 1000 ppm * .. to 10.00 ppt (depending on TDS factor)	.. to 1000 ppm * .. to 10.00 ppt
	Resolution	–		0.1 ppm 1 ppm 0.01 ppt	10 ppm 0.10 ppt
	Accuracy	–		±1 % full scale	
	Factor	–		0.40 to 1.00 (selectable)	
Cal. Points		3 auto, 3 manual	2 auto, 2 manual	3 manual	2 manual
Temperature	Range	0 to 50.0 °C / 32.0 to 122.0 °F			
	Resolution	0.1 °C / 0.1 °F			
	Accuracy	±0.5 °C / ±0.9 °F + 1 LSD			
	Calibration Window	±5.0 °C / ±9.0 °F			
Meter Features	Temperature Compensation	ATC (0 to 50 °C / 32.0 to 122.0 °F)		ATC (0.0 to 50.0 °C / 32.0 to 122.0 °F)	
	Sensor Type	Cup	Dip	Cup	Dip
	Temperature Coefficient	2 % per °C			
	Normalization Temperature	25.0 °C			
	Non-Volatile Memory	Yes			
	IP67	Yes			
	Operating Temperature	0.0 to 50.0 °C			
	Auto-Off	8.5 mins after last key pressed			
	LCD Display	Custom dual-display (2.1 x 2.7 cm)			
	Power	4 x 1.5 V 'A76' micro alkaline batteries			
	Battery Life	> 150 hrs			
	Dimensions (LxWxH); Weight	Tester: 16.5 x 3.8 cm ; 90 g Boxed: 18.5 x 6.5 x 5 cm ; 200 g			

• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: milliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand) * Max. 200.0 ppm and 2000 ppm based on TDS factor 1.0



<< Hydroponics



<< Fish Farms

Conductivity/TDS Pocket Testers

Item	Order Code	Part No.	Parameters			Sensors		Accessories	
			Conductivity	TDS	Temperature	Cup Type Sensor (ECTDSSENSORPLUS)	2-Pin Type Sensor (ECTDSSENSOR)	Lanyard	Alkaline Button Cell Batteries
ECTestr 11+	ECTEST11PLS	01X377227	•		•	•		•	•
ECTestr 11	ECTEST11	01X377226	•		•		•	•	•
TDSTestr 11+	TDSTEST11PLS	01X377234		•	•	•		•	•
TDSTestr 11	TDSTEST11	01X377233		•	•		•	•	•

Replacement Sensors & Electrodes

Used With	Description	Order Code	Part No.
ECTestr 11 / TDSTestr 11 / SaltTestr 11	2-pin type replacement sensor	ECTDSSENSOR	01X229713
ECTestr 11+ / TDSTestr 11+	Cup type replacement sensor	ECTDSSENSORPLUS	01X229714

Accessories

Used With	Description	Order Code	Part No.
All testers	Carrying pouch for pocket tester	ECPOUCH01	56X201300
All testers	Alkaline button cell batteries (50 units per pack)	ECBATT14	01X220401



<< Drinking Water >> Aquaculture
<< Swimming Pools >> Industrial Process Water

View readings, calibration and electrode status data all in one screen view – the CyberScan COND 600 series comes with advanced wireless communications technology for seamless data transfer from meter to PC. Meter also accepts and auto-detects 2-cell and 4-cell conductivity probes for pure water to wastewater applications.



Comprehensive multi-data screen display with backlight

High/low alarm limits

User-friendly set-up menu with intuitive soft-key operation

IP67 waterproof

CyberScan COND 600 ; CyberScan COND 610
Conductivity/TDS/Salinity/Resistivity/°C/°F
Conductivity/TDS/°C/°F



Wireless data transfer



Kit set comes with 4-cell conductivity electrode



Complimentary Cybercomm software – download data from meter to PC as text or Excel® spreadsheet



Velcro strap for firmer grip

Wider Measuring Range

- Up to 5 Conductivity ranges in one meter with convenient auto-ranging capabilities
- $\pm 1\%$ full scale accuracy at 3-decimal resolution
- Measures pure water with pure water temperature coefficient option

User-Friendly

- Backlit screen with multi-data display – convenient for working in dark areas
- Cal-due alarm for periodic calibration updates

Advanced Data Management

- Meter logs reading automatically within seconds of measurement
- Password protection security for calibration and set-up menus
- GLP-compliant with time and date-stamping
- RS232C through LED*, IrDA wireless communications technology

* RS232C (LED) interface adapter available as separate accessory (order code: 01X344201)



Applications

Environmental: Use to test water quality, monitor health of aquatic ecosystems, survey surface and ground water drinking supplies and to meet EPA regulations.

Industrial: Ideal for checking quality of plant water intake and discharge, wastewater and water treatment, recirculating systems and industrial process systems, water conditioning plants and chemical process verification.

Aquaculture: Use to monitor water conditions in catfish and shrimp farming, game stocking ponds, ornamental fish tanks and ponds as well as other fish farming applications.

Waterproof to IP67, the CyberScan CON 400 and 410 deliver lab-accurate results stamped with time and date for GLP-compliant research.

Conductivity/TDS/°C/°F
CyberScan CON 400 ; CyberScan CON 410
Conductivity/°C/°F



Ergonomic design for that perfect palm fit



Available as a complete kit version



Rubber grips at either side for firmer grip

IP67 – dustproof and waterproof

Conductivity electrode with built-in ATC and minimal bubble entrapment design

Applications

• Water quality testing • Geological and ecological testing • Cooling towers • Boiler water • Printing • Brines • Swimming pools and spas • Agriculture and aquaculture • Aquariums • Hydroponics • Fertilizers • Schools and laboratories

- Conveniently auto-ranging with up to 5-point push-button calibration
- Selectable cell constant
- GLP-compliant
- Selectable automatic/manual temperature compensation
- Hold function freezes readings for easy reference
- Auto-off conserves energy and lengthens battery life-span
- Non-volatile memory holds up to 50 data sets even when you run out of batteries

Expanded Features of CyberScan CON 410

- Measures TDS in addition to Conductivity and Temperature in °C and °F
- Adjustable TDS factor for direct derivation of TDS values



The economy CyberScan CON 11 and 110 are cost-effective, easy to use and self-diagnostic for easy trouble-shooting. Meters are uniquely designed to fit your palm perfectly for effortless one-hand operation.



CyberScan CON 11 ; CyberScan CON 110

Conductivity/TDS/°C/°F



Direct data printout via RS232C



Adjustable electrode holder

- Selectable automatic and manual calibration options
- Full-range accuracy with up to 5-point push-button calibration
- More accurate measurements with user-customisable options for normalisation temperature, TDS factor and temperature coefficient
- Non-volatile memory holds up to 50 data sets. Meter settings remain even when you run out of batteries
- Hold function freezes readings for easy reference
- Auto-off conserves energy and lengthens battery life-span

Expanded Features of CyberScan CON 110

- Convenient data transfer to a printer or PC with RS232C output
- One-glance monitoring of electrode performance with electrode data display
- Expanded memory holds up to 100 data sets



Applications

General: Monitor dissolved solids or Conductivity levels quickly and easily in laboratories, field, schools and educational environments.

Industrial: Use for testing pollution control, water treatment, and water hardness. Also useful for checking cooling towers, boiler water, fountain solutions in printing operations, brines, swimming pools, whirlpools and rinse water.

Agricultural: Use for checking aquariums, fish farms, hydroponics, and fertilizer/chemical concentrations.

Sturdy and economical – the Eutech EcoScan CON 6, TDS 6 are no-frills handhelds perfect for basic water testing needs. The meters are rugged, sturdy and come with protective rubber boots and hinges that conveniently double up as benchtop stands.



EcoScan easy view



Splashproof keypad



Protective rubber boot doubles up as meter stand

TDS/°C
Conductivity/°C
EcoScan CON 6 ; EcoScan TDS 6



IP54-rated housing protects against dust and water splashes

Conductivity electrode with built-in ATC and designed for minimal bubble entrapment

Applications









Routine Testing: For quick, accurate Conductivity or TDS checks in laboratories, field and schools.

Environmental/Agricultural: Useful in nutrient and fertilizer checks in hydroponics and agricultural industries.

Water Quality Testing: For analysing water, hard water, untreated water, industrial and rinse water, drinking water, effluent water, pool water and incoming process water. Ideal for all types of quality assurance, printing industries and water quality testing.

- Up to 5-point push-button calibration with auto-buffer recognition – quick, easy calibration with no mistakes
- $\pm 1\%$ full scale accuracy
- Selectable automatic/manual temperature compensation
- Auto-ranging for Conductivity measurements
- Adjustable TDS factor for direct derivation of values
- Non-volatile memory holds meter settings, even when batteries run out
- Easy troubleshooting with comprehensive self-diagnostic messages



		CyberScan Dual-Display						EcoScan Single-Display	
		COND 610	COND 600	CON 410	CON 400	CON 110	CON 11	CON 6	TDS 6
Conductivity/TDS Handheld Meters Specifications									
Measuring Parameter		Conductivity/TDS / Salinity/Resistivity/°C/°F	Conductivity / TDS / °C / °F		Conductivity / °C / °F	Conductivity/TDS / °C / °F	Conductivity / TDS / °C	Conductivity / °C	TDS / °C
Highlights		Waterproof, GLP, RS232C, IrDA, linear & pure TC	Waterproof, GLP, RS232C, IrDA, linear TC	Waterproof, GLP		Expanded memory, RS232C output	Standard handheld	Economical CON measurement	Economical TDS measurement
Conductivity	Range	.. to 2.000 µS/cm 2.000 to 300.0 µS/cm 300.0 µS/cm to 4.000 mS/cm 4.000 to 40.00 mS/cm 40.00 to 500.0 mS/cm	.. to 2.000 µS/cm 2.000 to 300.0 µS/cm 300.0 µS/cm to 4.000 mS/cm 4.000 to 40.00 mS/cm 40.00 to 200.0 mS/cm	.. to 19.99 µS/cm 19.9 to 199.9 µS/cm 199 to 1999 µS/cm 2.00 to 19.99 mS/cm 20.0 to 199.9 mS/cm				–	
	Resolution	0.01 µS/cm / 0.1 µS/cm / 0.001 mS/cm / 0.01 mS/cm / 0.1 mS/cm	0.05 % full scale						
	Accuracy	±1 % full scale + 1 LSD							
TDS	Range (Depending On TDS Factor)	.. to 2.000 ppm 2.000 to 300.0 ppm 300.0 ppm to 4.000 ppt 4.000 to 40.00 ppt 40.00 to 500.0 ppt	.. to 2.000 ppm 2.000 to 300.0 ppm 300.0 ppm to 4.000 ppt 4.000 to 40.00 ppt 40.00 to 200.0 ppt	.. to 10.00 ppm ** 10.0 to 100.0 ppm 100 to 1000 ppm 1.00 to 10.00 ppt 10.0 to 100.00 ppt	–	.. to 9.99 ppm ** 10.0 to 99.9 ppm 100 to 999 ppm 1.00 to 9.99 ppt 10.0 to 99.9 ppt		–	.. to 9.99 ppm ** 10.0 to 99.9 ppm 100 to 999 ppm 1.00 to 9.99 ppt 10.0 to 99.9 ppt
	Resolution	0.01 ppm / 0.1 ppm / 0.001 ppt / 0.01 ppt / 0.1 ppt		0.05 % full scale	–	0.05 % full scale			
	Accuracy	±1 % full scale + 1 LSD			–	±1 % full scale + 1 LSD			
	TDS Factor	0.40 to 1.00		0.40 to 1.0	–	0.40 to 1.0		–	0.40 to 1.0
Salinity	Range	.. to 0.770 ppm 0.770 to 143.3 ppm 143.3 ppm to 2138 ppt 2.138 to 23.64 ppt 23.64 to 80.00 ppt	–						
	Resolution	0.01 ppm / 0.1 ppm / 0.001 ppt / 0.01 ppt	–						
	Accuracy	±1 % full scale + 1 LSD		–					
Resistivity	Range	2.000 to 25.00 Ω 25.00 to 250.0 Ω 250.0 to 3.333 kΩ 3.333 to 500.0 kΩ 500.0 kΩ to 20.00 MΩ	–						
	Resolution	0.01 Ω / 0.1 Ω / 0.001 Ω / 0.1 Ω / 0.01 MΩ	–						
	Accuracy	1 % full scale + 1 LSD		–					
Cal. Points		4 (1 per range) auto, 5 (1 per range) manual		5 (1 per range) manual		4 (1 per range) auto, 5 (1 per range) manual		5 (1 per range) manual	
Temperature	Range	-10.0 to 110 °C / 14.0 to 230 °F		0.0 to 100.0 °C / 32.0 to 212 °F					
	Resolution	0.1 °C / 0.1 °F							
	Accuracy	±0.5 °C / ±0.9 °F							
	Compensation	ATC / MTC (0 to 80 °C)							
	Normalization	15 to 30 °C				20.0 or 25.0 °C			
Operating Temp.		0 to 50 °C							
Meter Features	Temperature Coefficient	Linear & pure	Linear	0.0 to 10.0 %				0.0 to 3.0 %	
	GLP	Yes				–			
	Cal-Due Alarm	Yes		–					
	IP67	Yes				–			
	Datalogging	Yes		–					
	Memory	500 data sets		50 data sets		100 data sets	50 data sets	–	
	Cell Constant	0.010 to 10.000		0.1, 1.0, 10.0					
	LCD Display	Dot-matrix LCD with backlight (5.4 x 7.1 cm)		Dual-display LCD (5.8 x 3.3 cm)				Single-display LCD (4.5 x 2.3 cm)	
	Auto-Off	2 to 30 mins after last key pressed		20 mins after last key pressed					
	Auto Hold	Yes				–			
	Input	DC phono sockets, 8-pin connector		6-pin connector		DC socket, 6-pin connector		BNC, 2.5 mm phono socket	
	Output	IrDA, RS232C (via LED) *		–		RS232C		–	
	Power	4 x 1.5 V'AA' alkaline batteries or 9 V DC adapter, 500 mA		4 x 1.5 V'AAA' alkaline batteries		4 x 1.5 V'AAA' alkaline batteries or 9 V DC adapter, 200 mA		4 x 1.5 V'AAA' alkaline batteries	
Battery Life		> 200 hrs		> 100 hrs		> 200 hrs		> 100 hrs	
Dimensions (LxWxH); Weight	Meter	18.3 x 9.5 x 5.7 cm ; 460 g		19 x 10 x 6 cm ; 320 g		18 x 9 x 4 cm ; 220 g		14 x 17 x 3.5 cm ; 200 g	
	Boxed	40 x 33 x 10 cm ; 2680 g		40 x 33 x 10 cm ; 2100 g				36 x 28 x 8 cm ; 1500 g	

• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: miliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand) ** Maximum 199.9 ppt depending on factor setting
* RS232C (LED) interface adapter available as separate accessory (see page 46 for order information)

Conductivity/TDS Handheld Meters

Item	Order Code	Part No.	Parameters					Electrodes			Accessories						
			Conductivity	TDS	Salinity	Resistivity	Temperature	4-Cell Conductivity Electrode (ECCONSEN9203J)	Conductivity Electrode (ECCONSEN91W)	Conductivity Electrode (ECCONSEN91B)	CyberComm 600 DAS Software	CyberComm Portable DAS Software	Electrode Holder	RS232C Cable	Power Adapter	CyberScan Carry Kit Set With Calibration Stds	EcoScan Carry Kit Set With Calibration Stds
COND 610	ECCONWP61043K	01X418307	•	•	•	•	•	•			•				•	•	
COND 600	ECCONWP60043K	01X418304	•	•			•	•			•				•	•	
CON 410	ECCONWP41003K	01X251412	•	•			•		•				•			•	
CON 400	ECCONWP40003K	01X251410	•				•		•				•			•	
CON 110	ECCON11003K	01X366309	•	•			•		•			•	•	•		•	
CON 11	ECCON1103K	01X366305	•	•			•		•				•			•	
CON 6	ECCON603K	01X289401	•				•			•							•
TDS 6	ECTDS603K	01X289406		•			•			•							•

Replacement Electrodes

Used With	Description	Order Code	Part No.
CyberScan COND 610 / COND 600	4-cell epoxy body Conductivity electrode, ATC, cell constant K=1.0, 12 x 120 mm, 8-pin connector, 3 m cable	ECCONSEN9203J	01X244723
CyberScan COND 610 / COND 600	2 stainless steel rings ultram-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, 8-pin connector, 1 m cable	ECCONSEN91J	01X244721
CyberScan CON 410 / CON 400 / CON 110 / CON 11	2 stainless steel rings ultram-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, 6-pin connector, 1 m cable	ECCONSEN91W	01X244702
EcoScan CON 6 / TDS 6	2-stainless steel rings ultram-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, BNC connector, 1 m cable	ECCONSEN91B	01X244701

Accessories

Used With	Description	Order Code	Part No.
CyberScan COND 610 / COND 600	CyberScan CON 600 series carry kit set – plastic carry case, 442 standard solutions (1413 mS, 12.88 mS KCl, 3000 ppm), deionised rinse water	ECCONWP600KIT	01X430202
CyberScan COND 610 / COND 600	100 / 240 VAC SMPS power adapter, 9 V, 6 W, centre +ve, US / UK / EUR / Japan plug	01X030132	01X030132
CyberScan COND 610 / COND 600	RS232C (LED) interface adapter	91100-85	01X344202
CyberScan CON 410 / CON 400 / CON 110 / CON 11	CyberScan Conductivity / TDS carry kit set – plastic carry case, 442 standard solutions (1413 mS, 12.88 mS KCl, 3000 ppm), deionised rinse water	ECCONWPKIT	01X266802
CyberScan CON 110 / CON 11	100 / 240 VAC SMPS power adapter, 9 V, 6 W, centre +ve, US / UK / EUR / Japan plug	60X030130	60X030130
CyberScan CON 110	RS232C communication cable – 9-pin male to 9-pin female connector, 1 m cable	ECCA02M09F09	30X219503
EcoScan CON 6 / TDS 6	EcoScan Conductivity / TDS carry kit set – plastic carry case, 442 standard solutions (1413 mS, 12.88 mS KCl, 3000 ppm), deionised rinse water	ECECOCONKIT	01X266902
12 mm diameter electrode	Electrode holder	15X000700	15X000700
All except CyberScan 600 series	CyberScan handheld carry pouch	ECPOUCH02	56X201400

<< Laboratories



<< Agricultural Industries



<< Pollution Control



Send data to any computer in the world directly from your meter! Eutech's CyberScan 6000 Series is the world's first Windows CE-driven touchscreen meter series with internet/ethernet-ready connection. With its comprehensive communications capabilities, you can choose to send data in any format – via the USB port, wirelessly using IrDA, or email via the internet.

CyberScan CON 6000
Conductivity/TDS/Salinity/Resistivity/°C/°F

World's first Windows® CE-driven
colour touchscreen bench meter

Detachable electrode
holder can be fixed on
either side of meter

Internet/ethernet-
ready connection



Real-time
on-screen graphing

Touchscreen
efficiency

Stores up to
1000 data sets
per parameter



Application software
with technical controls for
21 CFR Part 11
(software sold separately)



Multiple communications
capabilities

- Single-point and multi-point standardisation for Conductivity, Resistivity, TDS and Salinity measurements using 2-cell and 4-cell probes
- Advanced real-time on-screen graphing function provides useful indication for specific measurements
- Extensive setup screens enable you to customise meter to your needs, e.g. cell constant, temperature coefficient, TDS factor, alarm limits and other functions
- Windows® CE-driven, full-color touchscreen provides unmatched ease of use in operations and setups with user-friendly icons, user prompts and context specific 'help' screens
- Advanced USB, IrDA connectivity allows extensive host/device communication capabilities
- Secure log-in for up to ten users



1 year warranty for touchscreen
display; 3 years warranty for all
other meter components.

Applications

- Pharmaceutical manufacturing • Research and lab course work • Forensic analysis
- Life sciences and medical researches
- Environmental testing labs • Wastewater and drinking water facilities • Food processing and beverage production

Conductivity/TDS

CyberScan
Deluxe Bench

High-end conductivity measurement in the laboratory is simple with Eutech's CyberScan CON 1500. Featuring auto-standardisation, auto-calibration, and auto-ranging capabilities, the bench meter accepts 2-cell and 4-cell electrodes, giving you a broad range of measurement at $\pm 0.5\%$ full scale accuracy. Meter comes with bi-directional RS232C capabilities for two way communication with computer or printer, and a complimentary Data Acquisition Software (DAS) that allows you to work on meter remotely via your computer.

Conductivity/TDS/Resistivity/ $\mu\text{C}/\text{mF}$

CyberScan CON 1500



Bi-directional RS232C communication to PC with DAS



GLP-compliant software that allows input of serial number, operator ID and company name

Large characters provide clear wide viewing angle

Tactile keypad ensures efficient meter operation

Detachable electrode stand organises multiple electrodes neatly and holds them firmly in place

Scratch-resistant screen offers high durability

Applications

- Environmental studies • Chemical laboratories • Quality assurance testing
- Food science • Ecological studies
- Education institution

- Choose convenient auto-calibration with preset calibration values or manual multi-point calibration for greater flexibility and precision
- Standardisation is a breeze – meter features auto-standardisation, allowing you to detect the exact cell constant value of your electrodes with one button pressed
- Monitoring efficiency of your probe is easy with the effective cell constants display
- Built-in replatinizing circuit – quick, hassle-free replatinization in 5 minutes
- Meter comes with 4-cell electrode with built-in ATC – no need for separate ATC electrode



High-end conductivity measurement at an economical price! Eutech's CyberScan COND 1400 features auto-standardisation, auto-calibration, and auto-ranging capabilities, and accepts 2-cell and 4-cell electrodes – a must-have for researches on a budget.

NEW!

[Available in Q2 2008]



CyberScan COND 1400
Conductivity/TDS/°C/°F

- Choose convenient auto-calibration with preset calibration values or manual multi-point calibration for greater flexibility and precision
- Standardisation is a breeze – meter features auto-standardisation, allowing you to detect the exact cell constant value of your electrodes with one button pressed
- Monitoring efficiency of your probe is easy with the effective cell constants display
- Built-in replatinizing circuit – quick, hassle-free replatinization in 5 minutes
- Meter comes with 2-cell electrode with built-in ATC – no need for separate ATC electrode



Applications

- Environmental studies • Chemical laboratories • Quality assurance testing
- Food science • Ecological studies
- Education institution

Conductivity/TDS

CyberScan
Economy Bench

The economy CyberScan 510 series offers high precision and stability for years of reliable, value-for-money performance. The CON 510 is an affordable meter for accurate and consistent measurement of conductivity in the laboratory, and is great for labwork in school as well.



Dual-display LCD



Quick reference slide-out instruction card

Conductivity/TDS/°C/°F CyberScan CON 510



Save limited bench space with multi-electrode holder

IP54-rated splashproof housing and keypad

Straightforward keypad design ensures easy operation

Non-skid pads hold meter steady during operation

Applications

Routine Testing: For quick, accurate Conductivity or TDS checks in laboratories, field and schools.

Industrial: For checking metal finishing, solutions, cooling tower water, printing fountain solutions, boiler water, brines, drilling mud, rinse tanks, ponds, pollution control, recirculating systems, waste water and industrial process systems.

Water Quality Testing: For analyzing hard water, untreated water, drinking water, effluent water, pool water and incoming process water. Ideal for all types of quality assurance and water quality testing.

- High performance economy bench meter
- Selectable cell constant
- Custom dual display LCD
- Available with built-in electrode stand
- Up to 5-point push button calibration
- Auto-ranging across 5 ranges
- Menu-driven set-up for stress-free user-customisation
- Expanded memory of up to 100 data sets
- Other features include: Hold function, self diagnostic messages, 'ready' indicator, selectable ATC/MTC, quick reference slide out instruction card



		CyberScan Premium Bench			CyberScan Economy Bench	
		CON 6000	CON 1500	COND 1400	CON 510	
Conductivity/ TDS Bench Meters Specifications						
Measuring Parameter		Conductivity / TDS / Salinity / Resistivity / °C / °F	Conductivity / TDS / Resistivity / °C / °F	Conductivity / TDS / °C / °F		
Highlights		Windows® CE, single-channel color touchscreen	0.001 resolution, extensive display		Economical, high performance	
Conductivity	Range	.. to 200.0 µS/cm 200.0 µS/cm to 2.000 mS/cm 2.000 to 20.00 mS/cm 20.00 to 500.0 mS/cm	.. to 200.0 µS/cm 200.0 to 2000 µS/cm 2.000 to 20.00 mS/cm 20.00 to 500.0 mS/cm	.. to 200.0 µS/cm 0.000 to 200.0 µS/cm 200.0 µS/cm to 2.000 mS/cm 2.000 to 20.00 mS/cm 20.00 to 500.0 mS/cm	.. to 19.99 µS/cm 20.0 to 199.9 µS/cm 200 to 1999 µS/cm 2.00 to 19.99 mS/cm 20.0 to 199.9 mS/cm	
	Resolution	0.001 / 0.01 / 0.1 µS/cm 0.001 / 0.01 / 0.1 mS/cm			0.01 / 0.1 µS/cm 0.01 / 0.1 mS/cm	
TDS	Range (Depending On TDS Factor)	.. to 200.0 ppm 200.0 to 2000 ppm 2.000 to 20.00 ppt 20.00 to 500.0 ppt Depending on TDS factor	.. to 199.9 ppm 200.0 to 1999 ppm 2.000 to 19999 ppm 20.000 to 99999 ppm	.. to 20.00 ppm 2.000 to 200.0 ppm 20.00 to 2000 ppm 2000 to 20000 ppm 20000 to 99999 ppm	.. to 9.99 ppm 10.0 to 99.9 ppm 100 to 999 ppm 1.00 to 9.99 ppt 10.0 to 99.9 ppt	Maximum 199.9 ppt depending on factor setting
	Resolution	0.001 / 0.01 / 0.1 ppm, 0.001 / 0.01 / 0.1 ppt	0.001 / 0.01 / 0.1 / 1 ppm		0.01 ppm / 0.1 ppm / 1 ppm, 0.01 ppt / 0.1 ppt	
Resistivity	Range	0 to 19.99 kΩ 20.00 to 199.9 kΩ 200.0 kΩ to 1.999 MΩ 2.000 to 100.0 MΩ	0.000 to 19.99 kΩ 20.00 to 199.9 kΩ 200.0 kΩ to 1.999 MΩ 2.000 to 100.0 MΩ	-		
	Resolution	0.1 / 0.01 / 0.001 kΩ, 0.01 / 0.001 MΩ		-		
Salinity (Salt)	Range	0 to 90 ppt over 4 ranges	-			
	Resolution	0.1 / 0.01 / 0.001 ppt	-			
Accuracy		±0.5 % full scale + 1 digit	±0.5 % full scale		±1 % full scale	
Temperature	Range	-5.0 to 105.0 °C / 23.0 to 221.0 °F (meter)			0.0 to 80 °C (with supplied probe)	
	Resolution	0.1 °C / 0.1 °F				
	Accuracy	±0.2 °C / ±0.3 °F	±0.3 °C / ±0.5 °F		±0.5 °C / ±0.9 °F	
	Coefficient (Per °C)	0.000 to 10.000 %			0.0 to 10.0 %	
	Normalization	15.0 to 30.0 °C / 59.0 to 86.0 °F				
Cal. Points		4 auto, 4 manual			4 auto, 5 manual	
Meter Features	Temperature Compensation	ATC / MTC (-5 to 100 °C) (meter)	ATC / MTC (0 to 100 °C) (meter)		ATC / MTC (0 to 80 °C) (with supplied probe)	
	GLP	Yes	-			
	Cell Constant	0.1 / 1.0 / 10.0				
	Datalogging	Yes	-			
	Memory	Up to 1000 data sets per parameter	100 data sets	-	100 data sets	
	Automatic Endpoint	Yes	-		Yes	
	Operating Temperature	5 to 45 °C / 41 to 113 °F	0 to 50 °C / 32 to 122 °F			
	LCD Display	Windows® CE colour touchscreen (11.43 x 15.24 cm)	Scratch-proof LCD with backlight (7.2 x 10.6 cm)		Dual-display LCD with backlight (5.9 x 3.2 cm)	
	Input	DC socket, DIN connector SD reader, USB, RJ45, phono	DC socket, DIN connector 2-pin connector, phono		DC socket, 6-pin connector	
	Output	USB, IrDA, RS232C	RS232C	-		
	Power	9 V DC adapter, 3.3 A (100 / 240 VAC, SMPS)	12 V DC adapter, 300 mA (100 / 240 VAC, SMPS)		9 V DC adapter, 300 mA (100 / 240 VAC, SMPS)	
Dimensions (LxWxH); Weight	Meter	16.5 x 23.5 x 8.9 cm ; 1100 g	19.5 x 14 x 8.5 cm ; 950 g		23 x 18 x 6 cm ; 750 g	
	Boxed	49 x 28 x 16 cm ; 3330 g	49 x 28 x 16 cm ; 2510 g		41.5 x 25.5 x 9 cm ; 1100 g	

• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: milliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand)

Conductivity/TDS Bench Meters

Item	Order Code	Part No.	Parameters					Electrodes		Accessories					
			Conductivity	TDS	Salinity	Resistivity	Temperature	4-Cell Electrode (EC620165)	Conductivity Electrode (ECCONSEN91W)	CyberComm 6000 DAS Software	CyberComm Pro V2.4 DAS Software	Integral Electrode Holder	RS232C Cable	Power Adapter	Calibration Sachets
CON 6000	ECCON600043SC	01X373811	•	•	•	•	•	•		•		•	•	•	•
CON 6000	ECCON600043S	01X373805	•	•	•	•	•	•				•		•	•
CON 1500	ECCON150043S	01X296312	•	•		•	•	•			•	•	•	•	•
COND 1400	ECCON140043S	Available in Q2 2008													
CON 510	ECCON51043S	01X305204	•	•			•		•			•		•	•

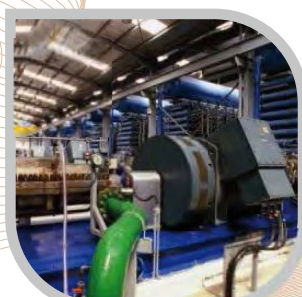
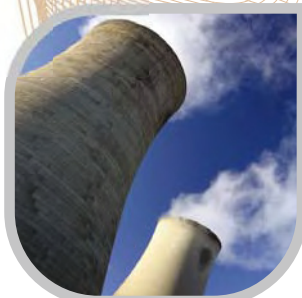
Replacement Electrodes

Used With	Description	Order Code	Part No.
CyberScan CON 6000 / CON 1500	4-cell epoxy-body Conductivity electrode, ATC, cell constant K=1.0, DIN connector, 1 m cable	EC620165	93X219046
CyberScan CON 510	2 stainless steel rings ultram-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, 6-pin connector, 1 m cable	ECCONSEN91W	01X244702

Accessories

Used With	Description	Order Code	Part No.
CyberScan CON 6000 / CON 1500	RS232C communication cable – 9-pin male to 9-pin female connector, 1 m cable	ECCA02M09F09	30X219503
CyberScan CON 6000	CyberComm 6000 (21 CFR Part 11 compliant CyberScan 6000 series application software)	ECDAS6000	01X415501
CyberScan CON 6000	100 / 240 VAC SMPS power adapter, 9 V, 3.3 A, centre -ve with 2-pin power cord	60X030128	60X030128
CyberScan CON 6000	USB flash drive, 256 MB	01X420001	01X420001
CyberScan CON 6000	SD memory card, 256 MB, Sandisk	01X419901	01X419901
CyberScan CON 1500	100 / 240 VAC SMPS power adapter, 12 V, 6 W, centre -ve with US / UK / EUR / Japan plug	60X030131	60X030131
CyberScan CON 510	110 / 120 VAC power adapter (50 / 60 Hz) 2-flat pin US type, 9 VDC 500 mA	60X030111	60X030111
CyberScan CON 510	220/230 VAC power adapter (50 / 60 Hz) 2-round pin Euro type, 9 VDC 500 mA	60X030112	60X030112

<< Water Analysing
<< Cooling Tower Water



>> School Laboratories
>> Recirculating Systems

Eutech's latest SaltTestr® 11 now comes with a new temperature display in °C and °F for easy reference during your salinity testing. Waterproof to IP67 standard, the SaltTestr® 11 assures high accuracy readings even in harsh field conditions, from aquaculture settings to food production applications.

Unlike other conventional testers, the SaltTestr® 11 offers $\pm 1\%$ full scale accuracy

More User-Friendly

- Direct temperature readout in °C and °F
- Large screen display
- Battery-level indicator
- Non-volatile memory

High Accuracy

- $\pm 1\%$ full scale accuracy
- Automatic Temperature Compensation (ATC)

More Savings

- Replaceable sensors
- Advanced power-conserving design



SaltTestr® 11 ; EcoScan Salt 6
Salinity/°C



User-replaceable sensor

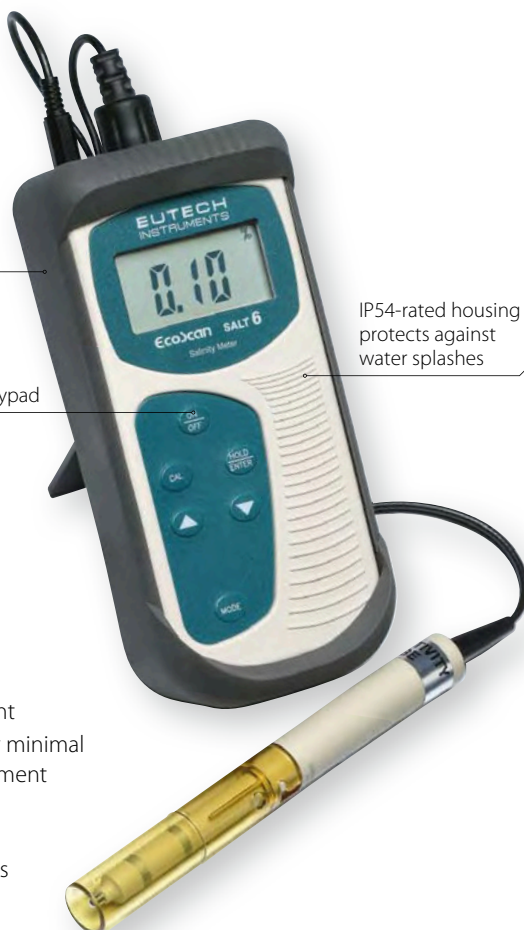
With sturdy rubber boot, splash-proof keypad, large custom LCD and rugged carrying case, salinity testing on the go is a breeze with the EcoScan Salt 6.

Protective rubber boot doubles up as stand

IP54-rated housing protects against water splashes

Splashproof keypad

- Measures in ppt and %
- Quick and easy push-button calibration
- User customisation for normalisation temperature and temperature coefficient
- Electrode with built-in ATC designed for minimal air bubble entrapment during measurement
- Rugged all-in-one meter kit available
- Other features include:
HOLD function, auto-off, self-diagnostics



Reader-friendly screen display



Applications

Routine Testing: For quick, accurate Salinity measurements in laboratories, field and schools.

Water Quality Testing: Ideal for salt levels in brines, pool water, aquaculture systems, aquariums (marine fish) and fish ponds (koi), food processing and healthcare industries.

Salinity

Pocket Tester & EcoScan
Handheld Specifications &
Ordering Information

		EcoScan Palmtop Single-Display	Waterproof Pocket Tester Large Dual-Display
		Salt 6	SaltTestr 11
Salinity Pocket Tester & Handheld Meter Specifications			
Measuring Parameter		Salinity / °C	
Highlights		Handheld meter for high accuracy and wide range Salinity measurements	Large dual-display
Salinity (TDS)/%	Range	1.0 to 50.0 ppt / 0.1 to 5.00 %	.. to 10.00 ppt
	Resolution	0.1 ppt / 0.01 %	0.10 ppt
	Accuracy	±1 % full scale	
	Cal. Points	1 (manual)	
Temperature	Range	-10.0 to 110 °C	0 to 50 °C / 32 to 122 °F
	Resolution	0.1 °C	0.1 °C / 0.1 °F
	Accuracy	±0.5 °C	±0.5 °C / ±0.9 °F
	Compensation	ATC / MTC (0 to 50 °C)	ATC (0 to 50 °C)
	Coefficient (Per °C)	0.0 to 3.0 %	2 %
	Normalization	20.0 °C and 25.0 °C (selectable)	25.0 °C
Meter Features	Temperature Compensation	ATC	
	Sensor Type	2-cell	2-pin
	IP67	–	Yes
	Operating Temperature	0 to 50 °C	
	LCD Display	Single-display LCD (4.5 x 2.3 cm)	Dual-display LCD (2.1 x 2.7 cm)
	Non-Volatile Memory	Yes	
	Auto-Off	20 mins after last key pressed	8.5 mins after last key pressed
	Power	4 x 1.5 V 'AAA' alkaline batteries	4 x 1.5 V 'A76' micro alkaline batteries
	Battery Life	> 100 hrs	> 150 hrs
Dimensions (LxWxH); Weight	Meter	14 x 17 x 3.5 cm ; 200 g	16.5 x 3.8 cm ; 90 g
	Boxed	36 x 28 x 8 cm ; 1500 g	18.5 x 6.5 x 5 cm ; 200 g

• 1 mS/cm = 1000 µS/cm (µS: microSiemens / mS: milliSiemens) • 1 ppt = 1000 ppm (ppm: parts per million / ppt: parts per thousand)

Salinity Pocket Tester & Handheld Meter

Item	Order Code	Part No.	Parameters		Electrodes	Accessories		
			Salinity	Temperature	Conductivity Electrode (ECCONSEN91B)	EcoScan Salinity Handheld Carry Kit Set*	Lanyard	Alkaline Button Cell Batteries
Salt 6	ECSALT603K	01X289409	•	•	•	•		
SaltTestr 11	SALTTEST11	01X377232	•	•			•	•

* EcoScan Salinity carry kit set – plastic carry case, 5 ppt, 25 ppt, 45 ppt NaCl standard solutions, deionised rinse water

Replacement Sensors & Electrodes

Used With	Description	Order Code	Part No.
EcoScan Salt 6	2 stainless steel rings ultram-body Conductivity electrode, ATC, cell constant K=1.0, 16 x 144 mm, BNC connector, 1 m cable	ECCONSEN91B	01X244701
SaltTestr 11	2-pin type replacement sensor	ECTDSSENSOR	01X229713

Accessories

Used With	Description	Order Code	Part No.
SaltTestr 11	5 ppt NaCl standard solution	ECNACL5PPT	01X211230
SaltTestr 11	25 ppt NaCl standard solution	ECNACL25PPT	01X211231
SaltTestr 11	45 ppt NaCl standard solution	ECNACL45PPT	01X211232
SaltTestr 11	Carrying pouch for pocket tester	ECPOUCH01	56X201300
SaltTestr 11	Alkaline button cell batteries (50 units per pack)	ECBATT14	01X220401